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The Audi A3 Sportback e-tron

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Annex: Technical Data

The equipment, data and prices specified in this document refer to the model range offered in Germany. Subject to change without notice; errors and omissions excepted.

Summary

Fully charged into the future – the Audi A3 Sportback e-tron

Audi is starting out toward future mobility with the A3 Sportback e-tron, the brand's first plug-in hybrid model. It can cover up to 50 kilometers (31.1 mi) in pure electric mode. The five-door compact, whose 1.4 TFSI engine and electric motor produce a system output of 150 kW (204 hp), is a sporty all-rounder and perfect for everyday driving.

Sporty power, groundbreaking efficiency, extremely fun to drive and uncompromising everyday utility – the A3 Sportback e-tron offers all the strengths of a typical Audi. Its drivetrain comprises a 1.4 TFSI engine with 110 kW (150 hp), a 75 kW electric motor and a newly developed six-speed S tronic with an integrated electric motor. System output is 150 kW (204 hp); maximum system torque is 350 Nm (258.1 lb-ft). The battery has a capacity of 8.8 kWh and can be charged in somewhat more than two hours from an industrial outlet. A versatile charging system is standard. A smartphone app provides for extremely easy remote charging and precooling/preheating.

The Audi A3 Sportback e-tron accelerates to 100 km/h (62.1 mph) in 7.6 seconds and has a top speed of 222 km/h (137.9 mph). In purely electric mode, top speed is limited to 130 km/h (80.8 mph). Fuel consumption according to the ECE standard for plug-in hybrid vehicles is just 1.5 liters of fuel per 100 kilometers (156.8 US mpg) – corresponding to CO₂ emissions of 35 grams per kilometer (56.3 g/mi). The compact five-door can cover 50 kilometers (31.1 mi) on electricity alone.

The hybrid management system intelligently controls the interaction of the drive systems. It offers the driver numerous functions, including boost, in which the engine and motor actively work together, and recuperation, which feeds the automobile's kinetic energy back into the battery. In contrast to some of its competitors, the Audi A3 Sportback e-tron is not an either-or concept, but a “both... and...” car that is up to any automotive task.

Thanks to systematic lightweight design, the five-door car has a curb weight (without driver) of just 1,540 kg (3,395.1 lb), yet offers space for five occupants and plenty of luggage. It comes with a generous list of standard equipment, and Audi offers numerous high-end solutions with the optional assistance and infotainment systems. The compact plug-in hybrid has a base price in Germany of 37,900 euros.

The Audi A3 Sportback e-tron immediately moves to the head of its class. Audi is convinced that plug-in hybrid automobiles represent the best solution for the electrification of mobility in the medium term. Additional models in the mid-size and full-size ranges will follow quickly.

At a glance:

The Audi A3 Sportback e-tron

Drivetrain

- 1.4 TFSI engine with 110 kW (150 hp) and 250 Nm (*184.4 lb-ft*) of torque, disc-shaped electric motor with 75 kW and 330 Nm (*243.4 lb-ft*);
- System output 150 kW (204 hp), system torque 350 Nm (*258.1 lb-ft*)
- Six-speed S tronic with integrated drivetrain decoupler, front-wheel drive
- ECE fuel consumption 1.5 liters per 100 km (*156.8 US mpg*), CO₂ emissions 35 grams per km (*56.3 g/mi*)
- 0 to 100 km/h (*62.1 mph*) in 7.6 seconds, top speed 222 km/h (*137.9 mph*)
- Electric range up to 50 km (*31.1 mi*)
- Intelligent hybrid management with multiple driving modes

Electrical system

- Liquid-cooled lithium-ion battery with 8.8 kWh capacity
- Compact and lightweight power electronics
- Charging via versatile charging system, including charging dock
- Audi connect e-tron services for remote control via smartphone

Chassis

- 16 to 18-inch alloy wheels, brakes with electric brake servo
- Electronic stabilization control (ESC) with two-stage deactivation and torque vectoring
- Front axle with aluminum components, electromechanical power steering

Body and design

- Occupant cell has large share of high-end steels, engine hood and fenders made of aluminum
- Curb weight (without driver) 1,540 kilograms (*3,395.1 lb*)
- Specific e-tron design accents mark Singleframe grille, bumpers, wheels

Interior and controls

- Spacious interior; luggage compartment volume from 280 to 1,120 liters
(9.9 to 39.6 cu ft)
- Elegant design and excellent ergonomics
- Comprehensive list of standard equipment, three trim lines
- Optional high-performance driver assistance systems and infotainment components, including MMI navigation plus and Audi connect

Full version

Sporty and highly efficient – The Audi A3 Sportback e-tron

The A3 Sportback e-tron combines sporty power, high efficiency and an emotional driving experience with uncompromising everyday utility.

A 1.4 TFSI engine and an electric motor work together in its parallel plug-in hybrid drivetrain. The system output of 150 kW (204 hp) is transferred to the front wheels via a newly developed six-speed S tronic.

Its sporty character positions the A3 Sportback e-tron as a new highlight in the A3 family. It accelerates to 100 km/h (*62.1 mph*) in 7.6 seconds and reaches a top speed of 222 km/h (*137.9 mph*). Average fuel consumption according to the ECE standard is just 1.5 liters of fuel per 100 kilometers (*156.8 US mpg*) – a CO₂ equivalent of 35 grams per kilometer (*56.3 g/mile*).

Drivetrain

150 kW (204 hp) of system power and 350 Nm (*258.1 lb-ft*) of system torque – these dynamics testify to the Audi genes of the A3 Sportback e-tron. The sprint to 100 km/h (*62.1 mph*) takes just 7.6 seconds, and the top speed is 222 km/h (*137.9 mph*). According to ECE Standard R 101 for plug-in hybrid vehicles, the five-door car emits on average just 35 grams CO₂ per kilometer (*56.3 g/mi*), which corresponds to a fuel consumption of 1.5 liters per 100 kilometers (*156.8 US mpg*). In electric mode this value is zero grams, and that with an action radius of up to 50 kilometers (*31.1 mi*).

The drivetrain of the A3 Sportback e-tron comprises three units: a 1.4 TFSI engine, an electric motor and a newly developed six-speed, dual-clutch transmission. The 1.4 TFSI is one of Audi's most advanced engines. Viewed in the driving direction, it is shifted roughly six centimeters (*2.4 in*) to the right in the engine compartment compared with an A3 with a classic drivetrain to make room for the additional components. Its crankcase is made of lightweight aluminum, and the entire engine weighs just 100 kilograms (*220.5 lb*).

The four-cylinder unit is state-of-the-art in every regard: from the turbocharger with an electric bypass valve to the rigid valve module, and from the compact intercooler to the thermal management system, which uses a high-performance coolant pump module. Its heart is the exhaust manifold integrated into the cylinder head. It quickly warms up the engine following a cold start, and at high load the water jacket reduces the temperature of the exhaust gas. The coolant loop for the TFSI also incorporates the oil cooler for the S tronic.

The hybrid concept of the A3 Sportback e-tron often does not activate the combustion engine until kickdown, even when cold. The A3 Sportback e-tron therefore includes special protective features, such as coated piston rings and bearings.

The 1.4 TFSI produces 110 kW (150 hp), and its peak torque of 250 Nm (184.4 lb-ft) is available continuously between 1,600 and 3,500 rpm to harmonize perfectly with the electric motor. The latter produces a maximum of 330 Nm (243.4 lb-ft), which is available virtually immediately and remains constant up to about 2,200 rpm. Maximum output is 75 kW.

The electric motor is a permanently excited synchronous machine. It weighs 34 kilograms (75.0 lb) and is liquid-cooled via a cooling jacket in the stator. The electric motor is located behind the engine's dual-mass flywheel and includes a decoupler. When the combustion engine starts, it is tow-started by the electric motor via the clutch. Once it reaches the same speed as the electric motor, the clutch closes. This happens smoothly within a few tenths of a second.

The electric motor/decoupler unit is integrated into a newly designed six-speed S tronic, which transfers the power to the front wheels of the Audi A3 Sportback e-tron. The dual-clutch transmission features a three-shaft layout. Its two subsidiary transmissions are served by the multi-plate clutches K1 and K2, which are immediately downstream of the decoupler K0. Gears are shifted by switching the clutches. This takes just a few hundredths of a second and occurs with no detectable interruption of propulsive power.

Additional components to the electric motor, battery, power electronics and charger are provided to support electric driving. The air conditioning compressor uses an electric drive integrated into the high-voltage electrical system. A thermoelectric heating element and an optional gasoline-powered auxiliary heater round out the cabin heating system.

An electric brake servo supports braking in the A3 Sportback e-tron. The generator enables the recuperation of braking energy in all situations. The brake management system supports this by precisely coordinating hydraulic and electric braking. The driver has a sporty and precise brake feel at all times.

Quiet dynamics: 0–60 km/h (37.3 mph) in 4.9 seconds

The Audi A3 Sportback e-tron offers a number of operating modes besides braking recuperation. The car is almost always started electrically, except at very low temperatures, in extremely hot conditions or when battery charge is very low. With the electric motor's brawny torque, the compact car accelerates strongly. It goes from 0 to 60 km/h (37.3 mph) in 4.9 seconds with virtually silent thrust that is a major aspect of the fascination of electric driving. In electric mode, interior noise in the Audi A3 Sportback e-tron is better than in a luxury sedan.

And even at a constant 100 km/h (62.1 mph) in EV mode, it is generally only the electric motor that is in operation provided that there is sufficient battery energy. Pure electric mode extends all the way up to 130 km/h (80.8 mph). If the driver floors the accelerator, hybrid mode is activated and the combustion engine joins in. The two engines begin working together sooner if the driver has selected the sporty S mode. Boost begins earlier and the A3 Sportback e-tron accelerates with 350 Nm (258.1 lb-ft) of system torque. When the driver lets up on the accelerator in S mode, the system recovers energy via coasting recuperation, whereas in D mode the hybrid system deactivates both drives and switches into gliding mode. The kinetic energy is now used to achieve maximum range via rolling, and engine drag losses are minimized.

The driver of the Audi A3 Sportback e-tron can intervene in the hybrid management system at any time. In addition to the S tronic, this is also possible via the special EV button on the instrument panel, which can be used to choose between four modes:

- “EV” prioritizes the electric drive. The “charge” setting is used to charge the battery as quickly as possible while driving. In “hybrid hold” mode, the energy is stored in the battery for later use, such as for urban driving at the destination or for boosting if the S tronic is in S.
- In “auto,” optimal use is made of the electrical energy in combination with the combustion engine to achieve minimal fuel consumption even over longer distances.

Battery and charging technology

The lithium-ion battery of the Audi A3 Sportback e-tron stores 8.8 kWh of energy. Depending on the level of charge, the voltage ranges between 280 and 390 volts. The battery comprises 96 prismatic cells arranged into eight modules of twelve cells each. Including the electronic components – the battery management controller and the battery junction box for the connections – the battery system weighs 125 kilograms (*275.6 lb*). The bottom shell of its housing is made of diecast aluminum, the top shell of polymer.

The high-voltage battery has an ideal operating temperature of around 25 degrees Celsius. It therefore has a sophisticated liquid cooling system in which four cooling plates regulate the temperature of the eight modules. Cooling is by means of a separate, flexibly controlled low-temperature loop, which also includes the power electronics and charger, as necessary. The Audi A3 Sportback e-tron can generally also be driven solely on electric power in the heat of mid-summer and the below-freezing temperatures of winter.

Installed under the rear seat, the flat battery is extremely well protected in an area where the high-strength and ultra-high-strength steel components of the occupant cell form an especially strong structure. The housing is bolted to the vehicle floor at five points. In the event of a crash sufficiently severe to trigger the belt tensioners or airbags, the system is disconnected from the power supply.

The 12-volt battery for the low-voltage consumers and the 40-liter (*10.6 US gal*) fuel tank are located over the rear axle. The luggage compartment remains spacious. In the standard configuration, it has a capacity of 280 liters (*9.9 cu ft*) and 1,120 liters (*39.6 cu ft*) with the rear seat backrest folded down.

With a volume of just eight liters (*0.3 cu ft*) and weighing just ten kilograms (*22.0 lb*), the power electronics in the engine compartment, which include a DC/DC converter for connecting to the 12-volt electrical system, are compact and lightweight. Six high-performance transistors convert the direct current supplied by the battery into three-phase current for the electric motor.

When charging the A3 Sportback e-tron, the charger converts the incoming alternating current into direct current for the battery. The charging port is located in the Singleframe grille behind the four rings, which fold out to the side. Besides a status light, there are also two buttons here. The driver uses them to either start the charging process immediately or via a timer for the next trip. Timer charging can also be programmed via a special menu in the MMI navigation plus or the new Audi connect e-tron services.

Versatile: The Audi e-tron charging system

The Audi A3 Sportback e-tron comes standard with a charging system that makes full use of the power supplied by the electrical outlet. It comprises a control unit with graphical display, a car cable and two power cables with the household and industrial plugs appropriate for the respective country. For use at home, the e-tron charging cable can be mounted in a design wall box (standard with the e-tron plus package). The charging dock can be locked to protect the equipment against theft, and a PIN code provides additional security. It takes barely more than two hours to charge the battery fully from an industrial power outlet and about three hours and 45 minutes from a German domestic power outlet.

Concurrent with the market launch of the A3 Sportback e-tron, Audi is also offering its customers a partnership with the utility company LichtBlick SE. 100 percent of the electricity supplied by the Hamburg-based company comes from renewable energy sources and is generated exclusively at hydroelectric power stations in Germany, Austria and Switzerland. With electricity from LichtBlick – called Audi Energy – the A3 Sportback e-tron is a zero-emissions vehicle when operated in electric mode.

If the customer opts for Audi Energy, his or her entire household will be supplied with environmentally friendly electricity. The cost is currently 26.76 cents per kWh, plus a monthly base prices of 8.95 euros. With LichtBlick, Audi has chosen one of the largest independent energy providers in Germany as its partner. The company is the market leader for green electricity and has already received numerous awards for its products, its price-performance ratio and its service.

Extremely convenient: The Audi connect e-tron services

Audi connect is the label for innovative online services for the A3 Sportback e-tron that allow drivers to control and regulate numerous functions. Audi has developed an app for this purpose with informative graphics that runs on modern iOS and Android smartphones. Audi also offers a special web portal for, among other things, the registration and activation of the services (www.a3etron.audi.com).

The Audi connect e-tron services enable drivers to remotely check the status of the car, such as the battery charge and electric range, and also call up a variety of service information and the car's location. Drivers can also manage charge planning remotely. They have the option of starting and stopping charging or setting the timer to reflect when they next plan to drive the car. They specify in detail at what time on what days they want to drive off with the battery fully charged.

The climate control planning function is used to activate the air conditioning or the optional auxiliary heater on an ad hoc basis or according to a timer schedule. In the latter case, which is referred to as preclimatizing, the car draws the energy required from the outlet so as not to compromise the electric range. Owners can view a variety of driving data, such as average electricity consumption or average speed, on the web portal.

Chassis

Thanks to the long wheelbase of 2,630 millimeters (*8.6 ft*) and the sophisticated chassis, the Audi A3 Sportback e-tron combines sporty driving fun with high comfort and composed stability. Some of the components of the front suspension are made of aluminum. The four-link rear suspension handles longitudinal and transverse forces separately. The highly precise power steering system features direct gearing and efficient electromechanical drive. Electronic stabilization control (ESC) with two-stage deactivation includes torque vectoring, which makes handling in corners even more fluid and safe.

The driver can use Audi drive select to configure the character of the car according to the modes comfort, auto, dynamic and individual. The system, which comes standard, also controls the optional components adaptive cruise control and adaptive light.

In the Attraction and Ambiente trim lines, the Audi A3 Sportback e-tron rolls on 16-inch wheels and rolling-resistance-optimized tires measuring 205/55 R16. The Ambition line comes standard with 17-inch cast aluminum wheels in an e-tron-typical 15-spoke design and 225/45 R17 tires. Special rolling-resistance-optimized tires were developed for the A3 e-tron. These reduce CO₂ emissions by as much as 5.3 grams per kilometer (*8.5 g/mi*). Additional 17 and 18-inch wheels in a variety of designs are available as options.

Body and design

Including all electrical components, the Audi A3 Sportback e-tron, which like all A3 models is based on the modular transverse matrix, has a curb weight (without driver) of just 1,540 kilograms (*3,395.1 lb*) – a result of Audi's strict lightweight design philosophy. Hot-shaped steels reduce weight in the occupant cell because their extremely high strength allows for thin wall thicknesses. The engine hood and front fenders are made of aluminum.

The Audi A3 Sportback e-tron is 4,312 millimeters (*14.1 ft*) long, 1,785 millimeters (*5.9 ft*) wide and 1,424 millimeters (*4.7 ft*) tall. Its body is sportily elongated, the front end low, and a spoiler crowns the taut dome of the roof. The design with the three side windows is taut, with every detail precise and expressive. The large wheel wells underscore the car's sporty character.

Subtle details document the special status of the plug-in hybrid model. The Singleframe grille is matt black and contains 14 fine, horizontal chrome struts. Forked chrome struts fill the air inlets. The bumpers and side sill trims have a sporty look. At the rear, the newly designed apron encompasses a platinum gray diffuser with two chrome-plated horizontal slats and two side reflectors. The exhaust system tailpipe is invisible. e-tron badges adorn the Singleframe, the luggage compartment hatch and the fenders. There are 13 paint finishes from which to choose.

Interior and equipment

The sporty lines of the exterior continue in the elegant and clean interior of the A3 Sportback e-tron. The instrument panel with its curving front is slim and flat. Together with the center console oriented toward the driver, it appears to float. The large, round air vents in jet design, the elegant control panel for the air conditioning and the sculpted trim strips bring full-size-class elegance into the interior.

The displays provide the driver with precise information about the drivetrain. The powermeter, which takes the place of the tachometer in the instrument cluster, shows the system's overall output, as well as the status of the drivetrain and the battery charge. The tachometer can be shown in the display between the speedometer and the powermeter. The monitor for the optional MMI navigation plus uses sophisticated graphics to visualize the energy flows in the hybrid system. The entire display and operating concept is clear and intuitive.

Gleaming e-tron logos can be found throughout the interior: on the door sill trims, the handle of the S tronic selector lever and in the right section of the cockpit fascia. Seat covers and decorative inlays vary according to the trim line – Attraction, Ambition or Ambiente. Ambiente includes decorative bezels in the particularly sophisticated 3D-design "Optic". Leather upholstery in the colors black, pashmina beige, titanium gray and chestnut brown is available for all three trim lines, and there is a choice of decorative bezels in a variety of aluminum finishes.

The sport seats are the highlight of the Ambition line. Audi also offers the S line sport package here, which bathes the cabin entirely in black. The sport seats are covered in a combination of fabric and leather; the inlays are matt, brushed aluminum, and the steering wheel is flattened at the bottom. 18-inch wheels provide for even sportier handling. Optionally available in the S line sport package are S sport seats with integrated backrests and upholstery in leather/Alcantara or Fine Nappa leather, inlays in a black, 3D look and the custom color Daytona Gray pearl effect.

Comprehensive: The standard equipment list

The Audi A3 Sportback e-tron is hitting the streets with a generous list of standard equipment. In addition to the equipment included with the other A3 Sportback models, this also includes deluxe automatic air conditioning, a three-spoke, multifunction steering wheel, MMI radio, Audi drive select, driver information system with color display, convenience key, leather selector lever knob, e-tron charging system and LED headlights. Safety equipment comprises seven airbags (including knee airbag for the driver), ISOFIX retention systems at the outer rear seating positions and the secondary collision brake assist. This automatically brakes the car following a collision, thus reducing the risk of another collision. Options such as rear side airbags and deactivation of the front passenger airbag round out the safety equipment.

There is also a comprehensive range of options. Highlights include the power-adjustable and heated front seats, panoramic glass roof, dark-tinted privacy glass, auxiliary heater and the charging cable for public charging stations.

A whole modular system of infotainment components is available. At the very top are the Bang & Olufsen Sound System and MMI navigation plus. Its flat seven-inch monitor extends electrically from the instrument panel. The user terminal has a rotary/push button control and MMI touch, which together form the touchwheel – the top of which is a touch-sensitive pad for inputting characters. Working in the background of the system is a fast graphics processor from Audi's partner, Nvidia.

As a perfect complement to MMI navigation plus, Audi connect provides a connection to the Internet. The WLAN hotspot lets passengers use as many as eight mobile devices to surf and e-mail. Besides charging and preclimatizing scheduling, Audi connect brings additional online services to the car that provide the driver with tailored information.

Audi offers its assistance systems from the full-size class as options for convenience and a superior driving experience. The range starts with the automatic distance control system adaptive cruise control, which warns the driver of a detected, impending collision with the vehicle ahead and initiates braking, if necessary. Additional systems are Audi side assist, which enhances safety when changing lanes, Audi active lane assist, which helps the driver to remain in the lane, and the safety systems Audi pre sense basic and Audi pre sense front, which in certain situations take preventive measures to protect the occupants. The park assist system with selective display automatically steers the A3 Sportback e-tron into suitable spaces. The driver information system with rest recommendation is standard in the Ambition and Ambiente lines.

Market

Presales of the Audi A3 Sportback e-tron begin in June 2014. Audi will begin delivering the first cars in Germany and Central Europe in winter 2014. The base price for the compact plug-in hybrid model is 37,900 euros. Audi also offers very attractive leasing terms for the Audi A3 Sportback e-tron.

The most important markets for the Audi A3 Sportback e-tron are the United States, Germany, Sweden, Norway, the Netherlands and the United Kingdom. Customers in these countries have a strong interest in sustainable products. They also appreciate the classic strengths of the Audi brand: high-end technology, uncompromising workmanship, sportiness and elegant design.

In Germany, Audi is selling the A3 Sportback e-tron via a network of some 100 selected dealerships. Their service employees have been specially trained to work with high-voltage technology. Furthermore, each e-tron dealership has an electric charging station. Customers can use these free of charge during business hours.